Colistin Use Patterns in Critically ill Patients in Pauls Stradins Clinical University Hospital

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Introduction. Colistin is antibacterial drug that was not used for many years because of potential nephrotoxicity. Nowadays intravenous colistin is used in critically ill patients in high doses for treatment of infections caused by multi-drug resistant (MDR) Gram-negative bacteria, also *Acinetobacter baumanii* [1]. It is recommended to decrease dose of colistin in case of renal impairment or renal replacement therapies (RRT) but clear recommendations are not available yet [2]. Also some hyperadsorbtive filters used for continuous RRT, e.g. AN69ST, could adsorb colistin, thus higher doses could be required [3].

Aim, Materials and Methods. The aim of this study is to detect colistin use patterns in Pauls Stradins Clinical University Hospital (PSCUH) critically ill patients.

The inclusion criteria for this study: adult patients; admission to PSCUH ICUs; ICD-10-CM Diagnosis Code A49.8 (bacterial infections of unspecified site); colistin therapy during hospitalisation (started in ICU); discharge from hospital in 2016. Information about patients' demographics, duration of hospitalisation and outcome, clinical diagnoses, colistin doses and duration of therapy, bacterial susceptibility and biochemical analysis tests results were collected retrospectively from medical histories. Statistical data analysis were performed by SPSS 20 Software. Approval of Ethical Committee of PSCUH have been received prior to the study.

Results. Forty medical histories met inclusion criteria. 75 % of the patients were men. Mean age was 61.8 ± 13.5 (34–85) years ± SD (min–max). Patient death rate was 55 %. Main clinical diagnoses were pneumonia, myocardial infarction and subarachnoid hemorrhage. Patients were mechanically ventilated and MDR Ac. baumanii mostly was found in trachea aspirate (52.5 % of cases) or blood and trachea aspirate together (22.5 %). Before colistin therapy, beta-lactam antibiotics (piperacillin/tazobactam or meropenem) were commonly used. Mean duration of colistin therapy was 32.5 ± 41 days ± SD. Mean cumulative colistin dose was 102.4 ± 72 (5–331) million units (MU) ± SD (min–mix). The most common loading dose (LD) of colistin was 9 MU (29 cases), 5 patients do not receive LD, other patients receive LD less than 9 MU (range 3–6 MU). Usual maintenance dose (MD) of colistin was 3 MU three times daily (26 cases) but in case of renal impairment MD was decreased. In 7 cases there was RRT before and during colistin therapy. These patients have received variable MDs (from 1 MU every 18 hours till 4.5 MU every 8 hours).

Conclusions. In PSCUH ICUs colistin is usually administered in higher doses than recommended in summary of product characteristics but are advisable according to newer literature data for treatment of MDR Ac. baumanii infections. Colistin dosage schemes in PSCUH ICUs depend on patient renal state and absence or presence of RRT.

References.

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